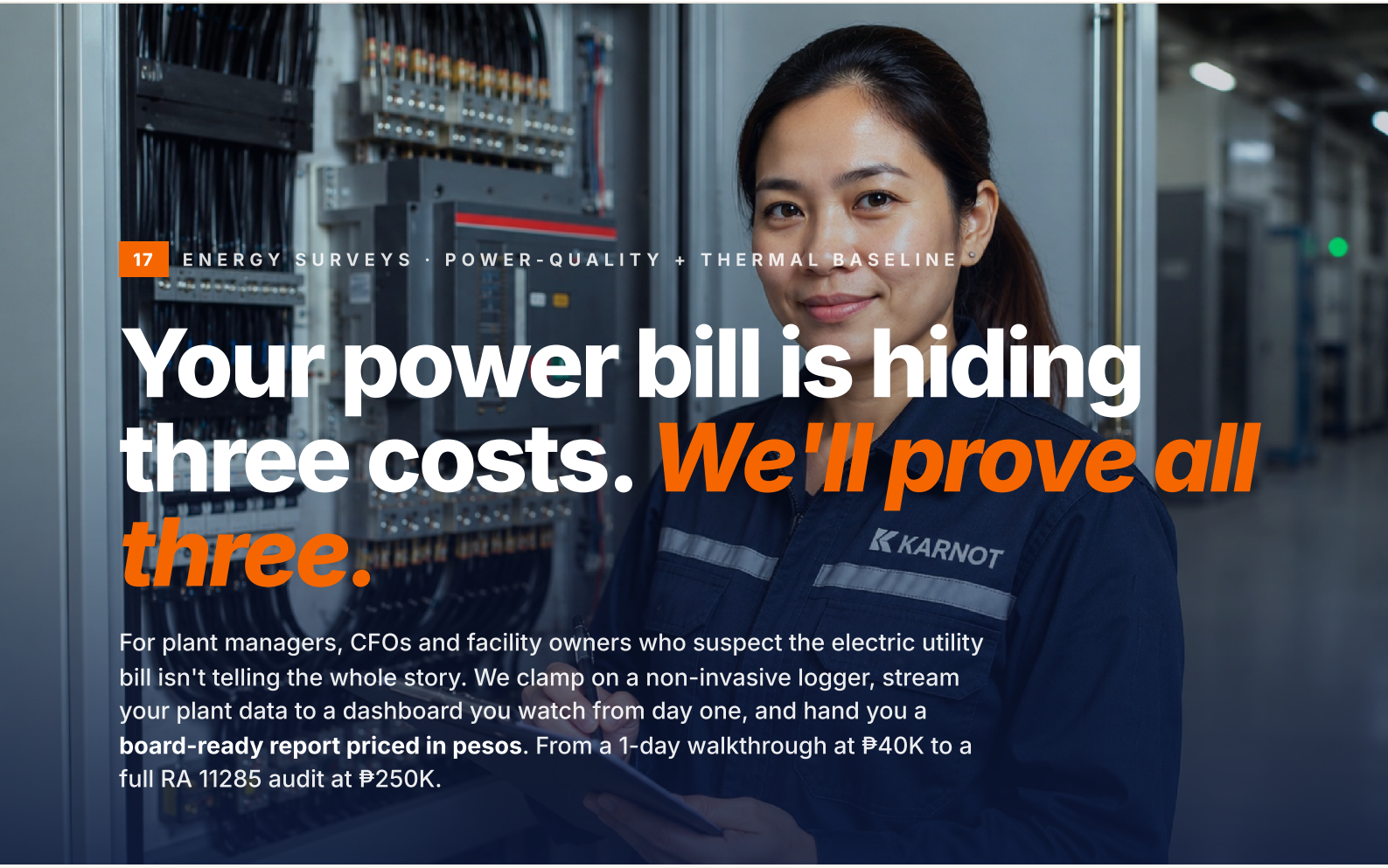

17 ENERGY SURVEYS · POWER-QUALITY + THERMAL BASELINE

Your power bill is hiding three costs. *We'll prove all three.*

For plant managers, CFOs and facility owners who suspect the electric utility bill isn't telling the whole story. We clamp on a non-invasive logger, stream your plant data to a dashboard you watch from day one, and hand you a **board-ready report priced in pesos**. From a 1-day walkthrough at ₱40K to a full RA 11285 audit at ₱250K.

TYPICAL HIDDEN-COST EXPOSURE · PHILIPPINE INDUSTRIAL & COMMERCIAL SITES

₱500K–3M

Hidden costs we typically find

Per site · per year · bill surcharges + spikes + equipment damage that never appear as a line item

From ₱40K

Survey fee · refunded on install

Walkthrough ₱40K · Level 1 instrumented ₱90K · Level 2 RA 11285 audit ₱250K

1 week

Non-invasive · zero downtime

Half-day install · week of logging · board-ready PDF on Day 10 · Level 2 runs multi-week

Find the leaks. *Then finance the fix.*

A survey isn't the end — it's the start. Once we've shown you what your bill is hiding, the install that fixes it (heat pumps, solar, storage) gets **financed by DBP, LandBank or BPI under green-loan programmes built for exactly this kind of project**. The monthly saving is larger than the monthly loan payment. **Net cash flow goes up from day one.** Karnot files the survey, the design, the permits and the loan paperwork — one team, end to end.

THREE LINE ITEMS HIDING ON EVERY COMMERCIAL BILL

Three line items that never appear — *but you pay for them every month.*

A surcharge, because your motors are out of sync with the grid

When your chillers, compressors and big motors don't move power in step with the grid, your utility adds a surcharge. Most factories don't know it's there. Most fix-it capacitor banks installed 5+ years ago have **silently failed**. We measure it. We price it in pesos.

POWER FACTOR · UTILITY PF < 0.85 CLAUSE

A single spike that re-prices your whole month

Your utility bills commercial accounts on the highest 15-minute kVA peak in the month. **One uncontrolled chiller startup re-rates the entire month upward** — and nothing on the bill explains why. Our loggers catch the spike, time-stamp it, and trace it to the equipment that caused it.

DEMAND CHARGE · 15-MINUTE KVA PEAK

Dirty power cooking your transformer in slow motion

Your VFDs, LED retrofits, UPS units and battery chargers **pollute your power supply**. Transformers run hot. Motors fail "randomly." Capacitors blow. We measure the pollution against IEEE 519 and name the load that's doing the damage — before it takes your plant down.

TOTAL HARMONIC DISTORTION · IEEE 519

HOW A LEVEL 1 SURVEY WORKS

Scope. Install. *Report.*

01

Scope · Day 1

One day on site

Our engineer walks the plant, photographs the single-line diagram, pulls **12 months of utility bills**, agrees the install window with your electrical safety officer.

02

Install · Day 2

Half a day · licensed electrician

Non-invasive clamp-on sensors on the incoming feeder and 4–8 priority sub-circuits. Cellular gateway to the cloud. **Dashboard live inside an hour** — you watch your own plant from day one.

03

Report · Day 10

15-page board-ready PDF

Seven days of second-resolution data, then a 15-page executive report, technical appendix, board-ready savings summary, heat-pump proposal sized against your real thermal load, and an **IPMVP M&V plan**. Level 2 audits run multi-week with DOE submission.

WHAT WE MEASURE · FOUR CHANNELS

Four channels of measurement. *One report priced in pesos.*

True consumption

kWh · kW · kVA per feeder

Validates the utility bill against measured reality. Reveals **ghost loads** running 24/7 that nobody knew about.

Penalty exposure

Power factor + reactive power

Catches the **surcharge buried in your bill**. Most cap banks installed 5+ years ago have failed silently — we'll know in 24 hours.

Dirty-power damage

Total + individual harmonics

Names the **specific load that's overheating** your transformer and shortening your motors. VFDs · LEDs · UPS · rectifiers.

Thermal demand

Boiler · chiller · AHU

Maps your **real 24/7 thermal load**. Sizes the heat pump against measured data, not a nameplate. Kills the #1 reason heat-pump retrofits fail commercially.

WHAT YOUR BILL IS HIDING · IN PESOS

Indicative hidden-cost exposure. *From real Philippine survey data.*

HIDDEN COST	WHERE IT HIDES IN YOUR BILL	TYPICAL ANNUAL EXPOSURE
Power-factor penalty	Utility surcharge when PF < 0.85	**₱180K – ₱1.2M**
Demand-charge spike	Highest 15-min kVA peak — one event re-rates the month	**₱240K – ₱2.1M**
Harmonic damage (IEEE 519)	Transformer life cut · motor failures	**₱350K+ per event**
Phase imbalance + voltage instability	Burned motors · failed neutrals · tripped production	**₱120K – ₱600K**
Oversized heat-pump retrofit	The project that fails commercially — never costed	**Project IRR −30 to −60%**
Typical hidden total / site / year	—	**₱500K – ₱3M+**

Indicative exposure ranges from Karnot survey scoping calls on Philippine industrial and commercial sites · 2024–2026. Real numbers come from a free scoping conversation on your own site. The survey itself costs ₱40,000 fixed — refunded when you proceed with the install — often less than one month of the power-factor penalty alone.

WHAT IT COSTS · THREE TIERS

Three tiers. *Fixed in writing, before we clamp on.*

WALKTHROUGH · 1 DAY

₱40,000

Refunded on install

One day on site. Engineer walks the plant, reviews 12 months of utility bills, photographs the single-line. **4-page executive memo** with top 3 recommendations and a sized install proposal. Refunded in full when you install.

Owners who want a same-week answer.

RECOMMENDED

LEVEL 1 SURVEY · 1 WEEK

₱90,000

Refunded on install

The full instrumented power-quality + thermal survey. **A-Eberle PQ-Box logger** for the week, cellular dashboard live from day one, 15-page board-ready PDF with **IPMVP M&V plan** on Day 10.

Serious buyers committing to a retrofit in 12 months.

LEVEL 2 AUDIT · RA 11285

₱250,000

DOE submission

Multi-week deep audit for **Type 1 / Type 2 Designated Establishments**. IPMVP Option B/C baseline, certified energy auditor signature, full DOE submission package. Compliance product — not refundable.

Includes DOE filing paperwork.

Post-install · Continuous M&V from ₱8K / month. Same dashboard the survey ran on. Monthly performance report, anomaly alerts, peso-denominated savings dashboard. SEC PFRS S2 / I-REC reporting export included. Bundled into project finance or stand-alone.

WHEN THE FIX GOES IN · HOW YOU PAY FOR IT

Three Philippine banks *already lend against an IPMVP baseline.*

DBP · SEFP

Sustainable Energy Finance Programme

Agri-industrial priority · 70–80% LTV · 5–10 year terms · **~6.5–8% p.a.**

LANDBANK · SEILP

Sustainable Energy Investment Loan

Path of least resistance if you bank with LandBank · **~7% p.a.**

BPI · SDF

Sustainable Development Finance

Fastest decisions for established SMEs with BPI relationships · **~1–1.5% below standard SME rate**

The survey gives the bank what it actually wants: an **audit-grade, IPMVP-compliant baseline** the loan can be sized against. Without that baseline, a shared-savings or pay-from-savings deal isn't possible. **With it, the bank pays for the kit, the saving pays the bank, the net cash flow is positive from month one.**

> **"Anyone can quote a heat pump off a nameplate. We clamp on, log your plant for a week, and size the system against what your factory actually does. The survey kills the "your numbers are too optimistic" objection before it starts, gives the bank the baseline it needs to lend, and gives the CFO a number the board will sign. The maths is not subtle. The only question is when you want it to start."**
>
> **Stuart Cox · Founder & CEO · Karnot Energy Solutions Inc.**